CHAPTEE XIV

AlR BEQUIBEMENT FOR COMBUSTION OF THE GAS IN THE! OPEN-HEARTH FURNACE.

As a result of practice it is shown that the fuel will I completely burnt in the open-hearth furnace with 1*8 time the theoretical amount of air, since analyses from differer works show that with such air ratios no trace of combustlb] gas is any more contained in the waste gases. Professor Mays found, on the other hand (" Stahl und Eisen," 1908, p. 725 that with 1*21 times the amount of air, still not quite coraplet combustion took place, in that the composition of the wast gas, . viz.:—C02 14*2 per cent. + CO O'l per cent.+ O 8- per cent. + N 81*9 per cent., still showed perceptible C< content.

The determination of the quantity of air to introduce int the furnace may therefore, however, not be based on th theoretical air requirement, which is required for the con: bustion of the gas, since, if one increases this amount up t 1'30 times the quantity of air will in accordance with practic turn out too low. The figure 1*3 relates to the total quantity c air requisite for the combustion of the raw fuel, of which., lio\\ ever, a portion has already been employed for gasification, an this portion may not be disregarded.

If one wishes to accurately determine the air requiremenl which indeed is of value for theoretical considerations, on cannot well proceed from the elementary analysis of the fue but one may suitably select the products of complete conibxistio as a basis, or else, in case the composition of the heating ga is determined, obtain all requisite data from this. As a: example of such a calculation, let the so-called best produce gas on p. 78 be selected. The quantity of air required for its complete combustio: